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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.				
10/648,832	08/27/2003	Robert Arnold	449122056800	3925				
29177 BELL, BOYD & LLOYD, LLP P.O. BOX 1135 CHICAGO, IL 60690	7590 09/28/2007		<table border="1"><tr><td colspan="2">EXAMINER</td></tr><tr><td colspan="2">GREY, CHRISTOPHER P</td></tr></table>		EXAMINER		GREY, CHRISTOPHER P	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/648,832

Applicant(s)

ARNOLD ET AL.

Examiner

Christopher P. Grey

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 16-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 16-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on August 21, 2007

Drawings

2. The drawings are objected to because they are handwritten.
Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5, 10, 11 are rejected under 35 U.S.C. 102 (b) as being anticipated by Mckee et al. (US 5477531), hereinafter referred to as Mckee.

Claim 1 Mckee discloses a test method for a message path existing between a first device and a second device (**fig 1, 11 and 12**), the first device and the second device being connected via a communication network (**see communication network depicted in fig 1**) and the communication between the first and the second device being effected by messages of a first protocol layer (**Col 4 lines 3-16, ICMP protocol**), and , the

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unmodified transmission of said messages in the communications network being effected by a second protocol layer subordinate to the first protocol layer (**Col 3 lines 45-63, where 802.2 link level protocol indicated the communication of the devices connected through the network via another lower level protocol**), wherein the messages of the first protocol layer are sent by the first device to the second device at short time intervals (**Col 7 lines 3-6, each test packet is sent at time intervals**) and the address of the first device according to the first protocol layer being selected both as a send address and as a receive address for said test messages (**Col 5 lines 16-19, where identifying the remote station for loopback testing, indicates that the sending device transmits the test packets, and also receives the loopback packets, therefore it is both the sender and destination; McKee also depicts a list of the transmission of test packets, where an ID/address indicates the transmission tx and reception rx of test packets at the testing device fig 2).**

Claim 5 McKee discloses wherein the messages of the first protocol layer are sent by the first device to the second device at short time intervals (**Col 7 lines 3-6, each test packet is sent at time intervals**) and the address of the second device according to the first protocol layer being selected both as a send address and as a receive address for said test messages (**Col 5 lines 16-19, where identifying the remote station for loopback testing, indicates that the tested device receives the test packets, and also transmits the loopback packets, therefore it is both a destination and transmitter, fig 2, 32, where the packet ID indicated the ID of the given receivers and transmitters in the loopback communication**).

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Claim 10 McKee discloses wherein the communications networks are based on protocol layer 2 of a protocol hierarchy (**Col 3 lines 60-63**) and the first, second and third device exchange or switch messages, datagrams or packets of protocol layer 3 of the protocol hierarchy (**Col 4 lines 3-16, ICMP protocol, IP, the protocol stacks may be of any form suitable for the particular links to which the corresponding stations are connected**).

Claim 11 McKee discloses wherein the communications networks are local area networks LAN and transfer or switch user data in accordance with the Ethernet protocol (**Col 3 lines 31-33, packet based communications network equivalent to Ethernet and Col 3 lines 60-64, IEEE 802.2**) and the first second and third device exchange or switch user data in accordance with the internet protocol IP (**Col 4 lines 3-16, ICMP is IP, see Col 1 lines 23-30**).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12 is rejected under 35 U.S.C. 102 (e) as being anticipated by Prarie et al. (US 6834139), hereinafter referred to as Prairie.

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Claim 12 Prarie discloses a network element that is connected by a connection network to at least one further network element, multiple message paths existing between the network element and the further network element owing to the structure of the connection network and the data exchanged between the network elements being switched through the connection network unmodified, wherein the network element (**fig 3, node A and node B connected via some network, where several network paths exists can be seen from the connection of the different ports shown between the nodes**);

Generates test messages related to the message paths, said messages being sent back immediately on account of their properties by the further network element to the network element (**Col 5 lines 52-55 and Col 5 lines 33-36, where loopback indicates immediately sending back test message**),

Sends the test messages to the further network element via the message paths, and receives the test messages on all message paths (**Col 5 lines 20-24, link verification is repeated for each port**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKee et al. (US 5477531), hereinafter referred to as McKee in view of Kahkosha et al. (US 6002671) hereinafter referred to as Kahkosha

Claim 2 McKee discloses a first test message that, in the fault free case, is immediately sent back to the first device by the second device on account of the chosen receive address (hence loopback disclosed in the rejection of claim 1)

McKee does not specifically disclose wherein the message path is marked as at least temporarily faulty if, within an appropriate period of time, the first device does not receive a first test.

Kahkosha discloses wherein the message path is marked as at least temporarily faulty if, within an appropriate period of time, a first test is not received by the first device (**Col 6 lines 6-14, where the display of an error message indicates fault**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the testing method as disclosed by McKee, so as to use and implement a timer in the testing apparatus, that would assist in monitoring the receipt of a loopback message, where upon no receipt of the message within a specified period of time, and indication of error would result as disclosed by Kahkosha. The motivation for

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this modification is to continue to retest the connection in the event that there is only a temporary fault.

Claim 3 Mckee does not specifically disclose wherein the message path is marked as permanently faulty if, within an appropriate period of time, a predeterminable number of further test messages are not received by the first device.

Kahkosha discloses wherein the message path is marked as permanently faulty if, within an appropriate period of time, a predeterminable number of further test messages are not received by the first device **(Col 6 lines 6-14, the error message received after the first error message is equivalent to a permanently fault marking, or fermentation because of a communication failure).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the testing method as disclosed by Mckee, so as to use and implement a timer in the testing apparatus, that would assist in monitoring the receipt of a loopback message, where upon no receipt of the message within a specified period of time, and indication of error would result as disclosed by Kahkosha. The motivation for this modification is to recognize that after a number of retests are performed without being successful, the connection is deemed to be inoperable or permanently faulty.

Claim 4 Mckee does not specifically disclose wherein a message path marked as permanently faulty continues to be tested using the test messages and the marking of this messages path as faulty is canceled if the end of the fault is established by the first device owing to the receipt of the test message.

Kahkosha discloses wherein a message path marked as permanently faulty continues to be tested using the test messages and the marking of this messages path as faulty is canceled if the end of the fault is established by the first device owing to the receipt of the test message (**Col 6 lines 6-14, and fig 3a 206, where when an ARP response is received no error message is displayed**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the testing method as disclosed by Mckee, so as to use and implement a timer in the testing apparatus, that would assist in monitoring the receipt of a loopack message, where upon no receipt of the message within a specified period of time, and indication of error would result as disclosed by Kahkosha. The motivation for this modification is to recognize that after a number of retests are performed without being successful, the connection is deemed to be inoperable or permanently faulty.

6. Claims 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mckee et al. (US 5477531), hereinafter referred to as Mckee in view of Prarie et al. (US 6834139), hereinafter referred to as Prarie.

Claim 6 Mckee does not specifically disclose wherein in the case of a redundant connection having multiple message paths between the first device and the second device, which is formed by the said communications network and at least one further communications network, separate interfaces of the first device host being linked to the respective redundant communications networks and crosslinks being provided between

the redundant communications networks, all message paths are tested and separately marked as faulty if faults are present.

Prairie discloses wherein in the case of a redundant connection having multiple message paths between the first device and the second device (**fig 3, node A and node B in communication via several message paths as shown**), which is formed by the said communications network and at least one further communications network, separate interfaces of the first device host being linked to the respective redundant communications networks and crosslinks being provided between the redundant communications networks (fig 3, 302, 304, 306 and 308), all message paths are tested (Col 5 lines 20-23) and separately marked as faulty if faults are present (**Col 6 lines 47-49, miswiring**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention that the stations as disclosed by Mckee can be modified so as to have a number of ports providing different message paths as disclosed by Prairie. The motivation for this modification is to provide redundancy.

7. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mckee et al. (US 5477531), hereinafter referred to as Mckee in view of Prairie et al. (US 6834139), hereinafter referred to as Prairie in further view of Kuo et al. (US 7209435), hereinafter referred to as Kuo.

Claim 7 The combined teachings of Mckee and Prairie do not specifically disclose wherein that at least one interface is marked as active and used for the transmission of

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user data and at least one further interface is marked as a standby and is not used for the transmission of user data, and the standby interface is activated and user data is henceforth transmitted via a standby interface and a message path associated with the standby interface as soon as all message paths associated with the active interface are marked as temporarily or permanently faulty.

Kuo discloses wherein that at least one interface is marked as active and used for the transmission of user data (**Col 6 lines 1-4 and fig 1, 118 where each switch represents an interface**) and at least one further interface is marked as a standby and is not used for the transmission of user data (**fig 1, 120**), and the standby interface is activated and user data is henceforth transmitted via a standby interface and a message path associated with the standby interface as soon as all message paths associated with the active interface are marked as temporarily or permanently faulty (**Col 6 lines 35-41, where standby switches are used as redundant routes in the event of an inoperative active master switch**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Mckee and Prarie, so as to implement a standby procedure for communication as disclosed by Kuo. The motivation for this modification is to employ redundant routes of communication.

Claim 8 The combined teachings of Mckee and Prarie do not specifically disclose wherein the second device is also configured redundantly in that at least one third device is provided (fig 2, 106 provides redundancy for 104), which takes over the function of the second device in the event of the latter's failure (fig 1, 106 is deemed a

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backup and takes over from 104 in the even that it is inoperative), the communication of the first device basically being routed to the second device as long as the second device can be reached via a message path associated with one of the interfaces and not being routed to the third device until and unless all message paths between the first and the second device are faulty.

Kuo discloses wherein the second device is also configured redundantly in that at least one third device is provided (fig 2, 106 provides redundancy for 104), which takes over the function of the second device in the event of the latter's failure (fig 1, 106 is deemed a backup and takes over from 104 in the even that it is inoperative), the communication of the first device basically being routed to the second device as long as the second device can be reached via a message path associated with one of the interfaces and not being routed to the third device until and unless all message paths between the first and the second device are faulty **(backup or standby is known in the art to take over in the even that communication can no longer exist in the primary device).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Mckee and Prarie so as to implement a backup switch for the second device. The motivation for this modification is to implement redundant paths.

Claim 9 The combined teachings of Mckee and Prairie do not specifically disclose wherein if all message paths between the first and the second device are faulty and the communication is routed to the third device said communication is immediately routed to

the second device as soon as one of the faulty message paths between the first and second device is available once more.

Kuo discloses wherein if all message paths between the first and the second device are faulty and the communication is routed to the third device said communication is immediately routed to the second device as soon as one of the faulty message paths between the first and second device is available once more **(Kuo discloses failover, Col 5 lines 30-32, where one skilled the art at the time of the invention knows that there are several methods and procedures available to provide failback, which involves switching back to the master in the event that the connection is restored and operative).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Mckee and Prarie, so as to implement the backup configuration as disclosed by Kuo. The motivation for employing the failback procedure is to implement the backup device as purely a standby device, whereas the master device may be designed to deal with the large and constant loads.

8. Claims 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prarie et al. (US 6834139), hereinafter referred to as Prarie in view of Finney et al. (US 5712856), hereinafter referred to as Finney.

Claim 13 Praire does not specifically disclose wherein the network element determines a faulty message path responding to a configurable number of test messages lost on this message path, the network element for determining the loss of

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test messages per message path having timers, the expiry of which signals the loss of a test message, the timer being initialized by a value corresponding to the maximum permissible signal transit time on the connection network and being started by the transmission of the test message, and the timer being stopped by the correct reception of the test message

Finney discloses wherein the network element determines a faulty message path **(Col 4 lines 35-36, error has occurred)** responding to a configurable number of test messages lost on this message path, the network element for determining the loss of test messages per message path having timers **(Col 4 lines 27-34)**, the expiry of which signals the loss of a test message **(Col 4 lines 7-12, error if not received within a predetermined time interval and Col 4 lines 57-58)**, the timer being initialized by a value corresponding to the maximum permissible signal transit time on the connection network and being started by the transmission of the test message, and the timer being stopped by the correct reception of the test message **(Col 4 lines 26-33 and Col 4 lines 57-58)**.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the testing apparatus as disclosed by Mckee, to include a counter as disclosed by Finney. The motivation for this modification is to set a limit in the amount of time a test message has to respond, thus eliminating delay.

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9. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prarie et al. (US 6834139), hereinafter referred to as Prarie in view of Kuo et al. (US 7209435), hereinafter referred to as Kuo.

Claim 14 Mckee does not specifically disclose wherein the network elements reroutes the user data traffic to a message path of a next lower priority in the event of a fault on the higher priority message path used up to that point.

Kuo discloses wherein the network elements reroutes the user data traffic to a message path of a next lower priority in the event of a fault on the higher priority message path used up to that point **(Col 6 lines 35-41, redundant routes in the event that switch becomes inoperative and Col 6 line 66-Col 7 line 15).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify Mckee by employing a method for backup interfaces, particularly the ports of Mckee, where the backup and master ports are determined based on priority such as that disclosed by Kuo. The motivation for this modification is for failover.

Claim 15 Mckee does not specifically disclose wherein the network element determines the end of the fault on a message path responding to the renewed reception of test messages, and reroutes the user data traffic to the message path of next higher priority responding to the end of the fault.

Kuo discloses wherein the network element determines the end of the fault on a message path responding to the renewed reception of test messages, and reroutes the user data traffic to the message path of next higher priority responding to the end of the fault **(Col 6 lines 65-66, where priority determines master and backup, where in the**

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event that an original master is restored to its high priority level, it is determined to be retake the master role. Furthermore, failback is well known and employed in the art).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify Mckee by employing a method for backup interfaces, particularly the ports of Mckee, where the backup and master ports are determined based on priority such as that disclosed by Kuo. The motivation for this modification is for failover.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(a) Volmmer (US 7263093) discloses providing an additional protocol layer using the communication protocol to enable a communication between the first wireless station and the second wireless station over a cable bound network to exchange control messages for controlling that link.

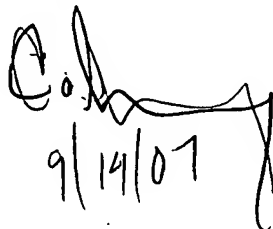
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 10AM-7:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on (571)272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher Grey
Examiner
Art Unit 2616



9/14/07



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